

# NHS Wales and the Regional Economy



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## A Welsh Economy Research Unit Report

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WELSH ECONOMY RESEARCH UNIT  
*Yr Uned Ymchwil i Economi Cymru*

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## Key Points

- **NHS Wales directly supported around 76,600 full-time equivalent jobs** (excluding agency workers) across the whole of Wales in 2016/17. This employment is linked with £3.3bn of salaries and wages.
- **Average annual wages in NHS Wales exceed the all Wales average**, whilst in the 'Human health' sector more generally, average wages in Wales are close to those in the UK. For the majority of other sectors, average wages in Wales are below those in the UK (wages in Wales are around 85% of the UK average).
- Almost 14,000 firms and organisations supply NHS Wales with goods and services. **Over 6,500 of these are based in Wales.**
- **NHS Wales is a significant economic player in the Welsh economy.** In total, including indirect effects, and effects generated as a result of spending of NHS direct employees and those in their supply chains, **NHS Wales is estimated to support almost 145,400 jobs and £5.4bn of gross value added (GVA).** This accounts for 11% of total Welsh employment and 9% of Welsh GVA. (This excludes important impacts via NHS Wales' capital spending programme).
- **Every £1bn of direct NHS revenue spending supports an estimated almost 19,000 total jobs in the Welsh economy.**
- **NHS activities and services impact positively on Welsh GVA and productivity.** These include impacts on the proportion of the population who are contributing to the economy, and the numbers of people who are defined as long-term sick.
- NHS Wales provides for **relatively stable employment** across the regional economy, and with spending that supports employment in sectors with relatively high productivity characteristics, and in some cases relatively high earnings. The economic activity supported by NHS Wales links to developmental issues highlighted in the recent Welsh Government document *Prosperity for All (2017)*.
- The report reflects a spending pattern in NHS Wales which is expected to evolve quickly in line with the transformative model espoused in *A Healthier Wales*. **The transformations in health and social care are expected to lead to changes in the direction and location of NHS spend in Wales**, and then the nature of economic impacts associated with changed directions in NHS spending.

# 1 INTRODUCTION

## 1.1 Background

The main aim of this report was to quantify the *economic* significance of NHS Wales to the regional economy. While the report also considers some wider socio-economic impacts, it should be noted that these impacts represent only selected by-products of NHS Wales' principal activity in terms of the provision of health and wellbeing services.

The current research builds on earlier analysis of the economic significance of the Aneurin Bevan Health Board in 2009/10.<sup>1</sup> One recommendation from this earlier research was to extend the analysis to cover the whole of the NHS in Wales. This is the first time such an analysis has been undertaken for the whole of the NHS in Wales.

In order to better understand the economic contribution of NHS Wales, the research seeks to answer the following questions:

- What is the current economic contribution of NHS Wales activity to the regional economy in terms of gross value added (GVA) and employment?
- To what extent does NHS Wales activity provide other spillover and welfare effects that are more difficult to value in monetary terms?
- Are the expected economic effects of NHS Wales consistent with the economic needs of Wales, and the strategic directions identified in key policy documents from the Welsh Government?

This research was undertaken during a period of increasing uncertainty for the Welsh and UK economies as a result of the ongoing Brexit negotiations. The conclusions to this report contain some reflection on the possible risks and opportunities for NHS Wales, its supply chain and related industries resulting from the transition process.

## 1.2 Method

The research was conducted in the year to June 2018, with information being gathered principally from the NHS Shared Services Partnership, on procurement spending and workforce profiles and earnings. This information is used to provide a profile of the direct economic significance of NHS Wales' activity, and to place NHS Wales in the context of the Welsh economy. This analysis is based on NHS Wales' revenue expenditure, and excludes capital expenditures.

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<sup>1</sup> Morgan, K., Munday, M., and Roberts, A. (2016) Local economic development opportunities from NHS spending: Evidence from Wales, *Urban Studies*, 54.3, see <http://journals.sagepub.com/doi/abs/10.1177/0042098016658248>

The analytical components of the report then show how NHS Wales supports economic activity in the wider economy. For example, while the NHS supports a level of employment directly, its purchasing of Welsh goods and services works to support employment in other parts of the Welsh economy. Similarly those firms that are supported also spend money in the Welsh economy that supports economic activity and so on. There is also a need to account for the economic activity supported through the spending of NHS Wales employees supported directly and indirectly. These are classified as induced effects. In this report these direct, indirect and induced effects are described in terms of spending (output), employment and GVA. The indirect and induced effects are estimated using the Welsh Input-Output framework. See Appendix 1 for further of the research methods.

### **1.3 Structure of the remainder of the report**

The next section of the report explores the direct economic significance of NHS. This section will include an analysis of the economic scale and scope of NHS Wales' activity as well as the wider socio-economic impacts, linking these to the needs of the Welsh economy. Section 3 provides the economic impact estimates, which includes the modelled estimates of indirect and induced effects. Section 4 provides conclusions and reflections from the research as well as recommendations for further research.

## 2 NHS Wales within the Welsh economy

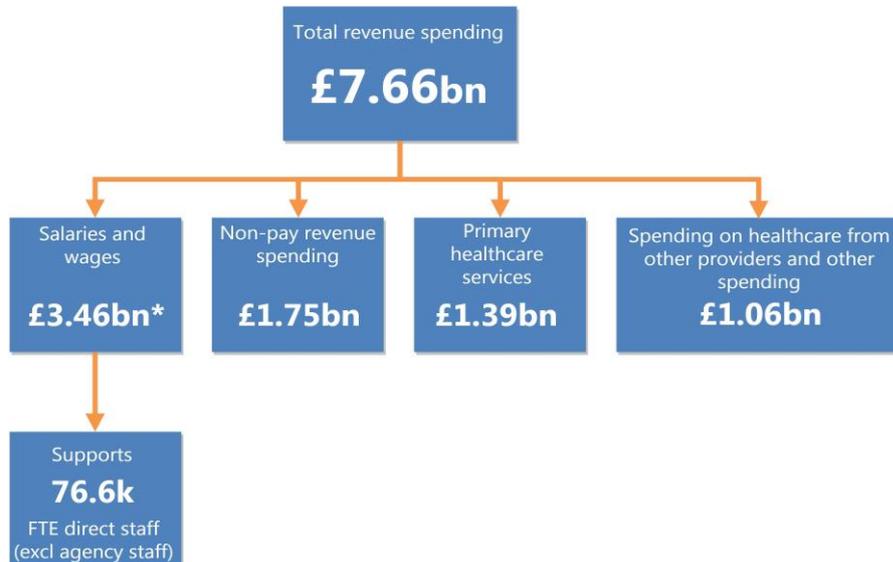
### 2.1 Introduction

This section aims to identify, and quantify where possible, the significance of NHS Wales to the regional economy. In order to place NHS Wales in the context of the Welsh economy, the analysis will firstly examine its direct economic contribution in terms of its scale and scope. The section will then explore some of the other characteristics of NHS Wales activity that influence its impact, and how this activity helps meet the needs of the Welsh economy and links to Welsh Government economic development and future generations strategies.

### 2.2 Direct scale and scope of NHS Wales: Employment and GVA

NHS Wales makes a significant contribution to the regional economy, through its activities as an economic organisation – directly employing people, paying wages, and buying goods and services.

**Figure 1: NHS Wales headline data - direct spending and employment (2016/17)**



\*Includes payments to agency workers. The salaries and wages relating only to direct NHS Wales staff is £3.3bn.

Sources: LFR3 report 2016/17, Summarised accounts NHS Wales 2016/17, Workforce Performance Dashboard.

Total revenue spending of NHS Wales in 2016/17 was an estimated £7.7bn. Figure 1 shows the main components of this spending. The largest component of spend was on salaries and wages (total employment costs) for NHS direct staff (including agency staff) which sum to almost £3.5bn (45% of total revenue spending). These wage payments are linked to around **76,600 direct NHS staff**, (plus an additional estimated 1,860 agency staff), accounting for just over **6% of Welsh FTE employment**. It is important to note that these figures do not include general practitioners, or dentists/ opticians that practice in the community, as these activities are commissioned through NHS Wales with payments included in primary healthcare (see Figure 1). These employments will however be captured as part of the indirect effects discussed later.

The principal component of GVA (as measured using the income approach) is 'compensation of employees', which in practice is measured as total labour costs (including wages and salaries plus employer costs) with the other components including gross operating surplus, and taxes less subsidies on production. In the case of the NHS (and public sector more generally), the latter components are not as relevant in the same way as private sector enterprises, leaving GVA to *approximately* equal employment incomes. On this basis, NHS Wales **direct GVA is estimated £3.46bn, or 5.8% of Welsh GVA**.

### 2.3 Wider socio-economic significance

In addition to the direct financial and employment scale of NHS Wales, this significance extends to wider socio-economic factors.

Some of the main wider impacts are:

- Employment is distributed in all regions of Wales (Figure 2), helping to provide support economic activity in some of the less prosperous parts of the economy (Figure 3). NHS employment therefore plays a stabilising role, and is less prone to business cycle variation which affects a small open economy such as Wales.
- Average annual gross wages (excluding employer costs) in NHS Wales were £33,800 in 2016/17. These are well above the Welsh average of £24,600 (Annual Survey of Hours and Earning (ASHE), 2017), While average annual wages in Welsh manufacturing, and service sectors in general, are below the UK averages in those sectors (93% and 83% of the UK averages respectively), wages for the broader 'human health' sector in Wales (almost £28,000 per annum) are similar to those in this sector in the UK as a whole (£27,700).

**Figure 2: Geographic distribution of NHS Wales direct employment**

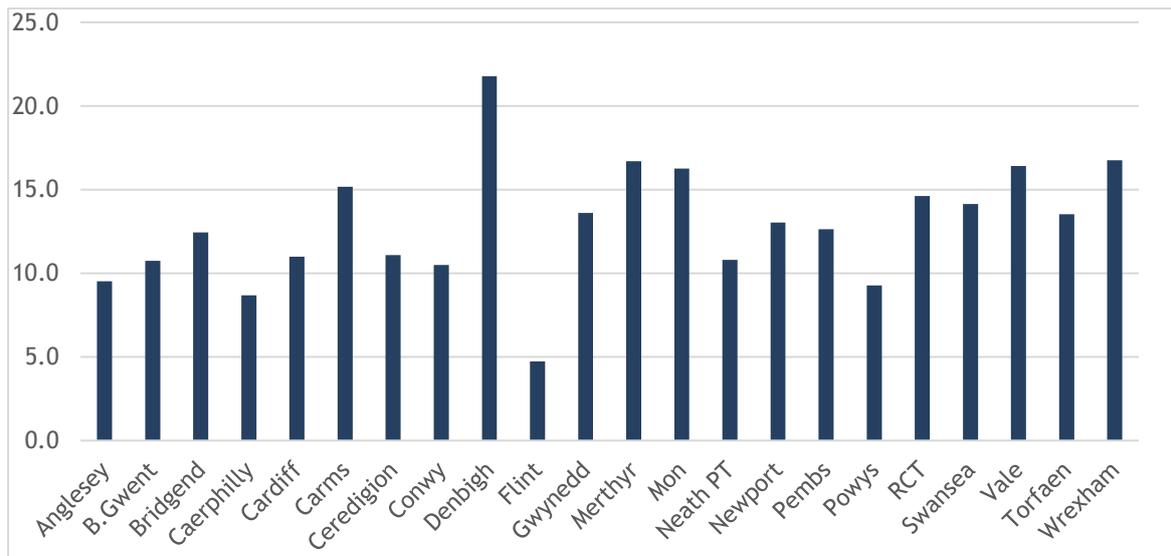


**Pan-Wales**

Public Health Wales	Velindre	WAST
1,460	3,500	2,990

WAST is the Welsh Ambulance Service NHS Trust  
Source: Workforce Performance Dashboard, NHS Wales

**Figure 3: Share (% total employment) of employment in health-related sectors by Welsh local authority areas (2016)**



Source: Derived from Business Register and Employment Survey, ONS. Health-related sectors include hospital activities, medical nursing home activity, general and specialist medical practice, residential care and nursing and other care activities.

Related to the above point, NHS Wales' employment around Wales displays the full range of functions and occupations. Again this is dis-similar to many other sectors of the economy where the Welsh-based activities have a limited occupational/functional profile, with firm headquarters (and higher wage functions) often located outside of Wales.

There are a range of impacts that are difficult to precisely quantify, but no less important. In summary, these factors include the important role of NHS Wales in supporting health and wellbeing, enabling individuals to participate in the labour market, ultimately impacting on economic activity rates, productivity and GVA.

The NHS in Wales is also an important demand point for high quality research, and also provides new research. Research undertaken through the auspices and/or with the support of NHS Wales provides benefits to clinicians and the population of Wales, as well as internationally. Clinical, research and operational staff trained in Wales are used worldwide.

NHS Wales through its spending, research, and its development of human capital is part of the evolving life sciences ecosystem in Wales. Parts of the life sciences sector in Wales provide research and innovation that improve treatment and outcomes for patients in Wales. Selected firms in Welsh life sciences undertake research and development in the region, making use of highly skilled workers, but also benefit from the presence of the universities, and medical staff within the NHS itself. Importantly, elements of this activity, and its value, cannot be embraced within the economic modelling undertaken within this report. However, NHS through its activity works to support activity in significant parts of Welsh manufacturing, and with parts of the life sciences sector being important exporters for Wales.

## **2.4 NHS and regional economic and future generations strategies**

The context for regional economic strategies in Wales is the fact that the growth of the Welsh economy has lagged behind that of the UK economy during the last decade, and that there is strong variability in terms of access to economic opportunity in different parts of Wales. The relatively poor record on economic growth in terms of GVA has been maintained even in recent periods when Wales has enjoyed relatively strong employment growth. Welsh GVA per capita is more than 25% below the UK average. The persistence of this GVA per capita gap provides some context to the importance of economic activity supported by NHS Wales.

Identified factors explaining the GVA per capita gap include low average output or GVA per job (and with this associated with changes in productivity related to changes in industrial structure and a decline in manufacturing, combined with an increase in lower value services with lower relative wages). Short term prospects for convergence with the UK on the GVA per capita measure are very limited.

In this context NHS Wales activity provides for relatively stable employment across the regional economy, and with spending that supports employment in sectors with relatively high productivity characteristics, and in some cases relatively high earnings.

The economic activity supported by NHS Wales then links closely to developmental issues highlighted in the recent Welsh Government *Prosperity for All (2017)*<sup>2</sup> which revealed concerns on the uneven distribution of growth and opportunity across Wales, but also recognised the importance of the promotion of health, including a special emphasis on mental health, skills, and learning in the workplace. More generally in achieving health and welfare outcomes NHS Wales activity also ties to the *Well-being of Future Generations (Wales) Act*<sup>3</sup> which explicitly recognises the importance of good mental and physical health and wellbeing in supporting economic outcomes. Finally the publication of *A Healthier Wales*<sup>4</sup> earlier this year laid down ambitious challenges and actions for the NHS in Wales and other stakeholders in the social care sector. Some reflections from the research in the context of *A Healthier Wales* can be found in Section 4 of this report.

## 2.5 Conclusions

NHS Wales is a significant Welsh economy actor, directly supporting around 6% of Welsh FTE employment and GVA.

The socio-economics impacts of NHS Wales however spread far beyond its economic scale and scope, to include wider impacts, including on employment stability, regional wages, occupational structure, and economic activity rates. Collectively these factors positively impact Welsh productivity and GVA, and hence provide a route through which some of the key aspirations contained within Welsh Government strategy documents (such as *Prosperity for All, 2017*) can be achieved. In addition, the estimated impacts of NHS Wales will increase when consideration is given to the indirect and induced-income effects outlined earlier. These effects will be considered in the next section.

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<sup>2</sup> See <https://gov.wales/newsroom/firstminister/2017/170919-new-national-strategy-for-a-more-prosperous-wales/?lang=en>

<sup>3</sup> See <https://gov.wales/topics/people-and-communities/people/future-generations-act/?lang=en>

<sup>4</sup> See <https://gov.wales/topics/health/publications/healthier-wales/?lang=en>

## 3 NHS Wales: Economic impact

### 3.1 Introduction

The previous section has described the direct scale and scope of NHS Wales' economic activity. This showed that approximately 76,600 FTEs are directly employed in NHS Wales, with around £3.5bn of direct GVA. This section extends this analysis to estimate the scale of additional activity that is supported through the NHS Wales supply chain, and through the effects associated with employee (and supply-chain employees) spending within the regional economy.

### 3.2 Indirect economic activity supported by NHS Wales

Figure 1 provided a summary of key NHS Wales' expenditures. One important research task involved the detailed analysis of NHS Wales' procurement data to estimate, for each category, the proportion of spending remaining within the Welsh economy.

For example, regarding non-pay revenue spending, this covers a wide range of goods and services – for example relating to drugs and dressings, medical and surgical equipment, as well as items such as food, utilities and other supplies and services. The allocation of these expenditures by location (i.e. within or outside Wales) was principally made using invoice postcode data.<sup>5</sup>

This spending of NHS Wales will have indirect economic consequences according to how that money is spent. As noted above, NHS Wales purchases, as inputs, the goods and services provided by other Welsh industries. The producers of these goods and services then also spend money on the outputs of other Welsh industries. Importantly, this spending supports rounds of further spending in the local economy. These are categorised as 'supplier' effects, and an important determinant of the size of these effects is the level of local sourcing by NHS Wales, and then the levels of local sourcing further down the supply chain.

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<sup>5</sup> This allocation method can be problematic, for example, some payments may be made to a company headquarters addresses outside Wales, but with this payment ultimately supporting a local base which supplies NHS Wales. These issues, and the method for overcoming some of these data limitations is more fully discussed in Morgan et al., (2016) in their study of the Aneurin Bevan Health Board, see footnote 1.

**Figure 4: NHS Wales local purchasing**

Note: \*Unallocated spend includes for example depreciation and some miscellaneous expenditure.

Source: NHS procurement database, Welsh Economy Research Unit estimates.

Figure 4 shows that, of the (non-wage) spending that could be allocated to sectors of the Welsh economy, 47% was to Welsh based suppliers. The NHS Wales procurement database also provides information on the number of supplier firms and organisations. There were a total of almost 14,200 supplier firms and organisations to NHS Wales, with over 6,500 of these located in Wales. It is not possible to draw conclusions, from an analysis based primarily on invoice postcodes, on the dependence of NHS Wales on supplies from overseas, as the vast majority of such supplies come via distributors with UK postcodes. Such information is of interest in the context of Brexit, however this could be the subject of further research.

It is difficult to place the data in Figure 4 in the context of other public sector activities, as there is no directly comparable information available for these other sectors. The information that is available is limited and generally fairly dated. For example, the *Wales Procurement Policy Statement (2015)*<sup>6</sup> noted that in respect of selected public procurement spending, that Wales-based suppliers had accounted for 55% of this expenditure. Given the nature of some NHS Wales non-wage spending, including on items such as drugs and medical and surgical equipment, there are specific challenges to local (Welsh) sourcing due to a limited supply side for such items within Wales.

<sup>6</sup> See <https://gov.wales/docs/prp/toolkit/june15walesprocurementpolicystatement2015v1.pdf>

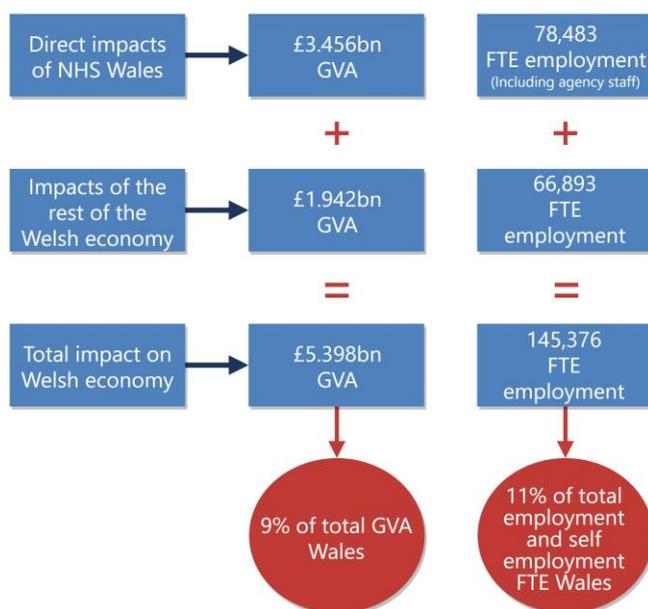
The economic impacts of NHS Wales go well beyond these supplier effects. For example, it is estimated that NHS Wales activity is associated with a total gross payroll bill of around £3.5bn per annum. This represents in large measure incomes to local people. A proportion of these incomes are spent by NHS employees within Wales, and this spending also adds to local demand. Similarly a proportion of the employment in local suppliers is supported by NHS Wales wage spending. These are examples of ‘induced-income’ effects and must be added to the ‘supplier’ effects to arrive at a full understanding of the total indirect or multiplier consequences of firm spending on the Welsh economy. These ‘multiplier’ effects can be categorised in terms of GVA and employment, and are estimated using the Welsh Input-Output framework (see Appendix 1 for information).

Data provided by NHS Wales showed estimated revenue spending in 2016-17 of £7.7bn, and that this was associated with £3.46bn of direct GVA and almost 78,500 FTE jobs. For this analysis the agency workers are counted in with the direct employment. Figure 5 shows the indirect and induced GVA and employment effects associated with this direct activity.

More than £1.9bn of GVA is estimated to be supported in Wales through multiplier effects, and this is linked with almost 67,000 FTE jobs, adding these impacts to the direct effects gives an estimated total impact of almost £5.4bn of GVA (accounting for 9% of Welsh GVA) and 145,000 FTE jobs (11% of total FTE jobs).

Using these estimates, every £1bn of direct NHS revenue spending supports an estimated almost 19,000 jobs in the Welsh economy (including multiplier effects).

**Figure 5: Total economic significance of NHS Wales**



Data sources: LFR3 report, Workforce Performance Dashboard, NHS Wales summarised accounts, Welsh Input-Output Tables, Welsh Economy Research Unit estimates.

As shown in Figure 1, a significant share of NHS Wales' revenue spending is on other parts of the health sector, including primary healthcare services, and healthcare from other providers. However the spending of NHS Wales reaches into all areas and sectors of the Welsh economy. Figure 6 provides an analysis of the impacts on the wider economy, excluding in health-related sectors. This shows GVA of over £1bn supported in other parts of the economy, and almost 33,000 FTE jobs, including in sectors such as primary industries and manufacturing, business services, wholesale, retail, and construction.

**Figure 6: Impacts in the rest of the Welsh economy (excluding health-related sector impacts)**



### 3.3 Conclusions

This section has extended the analysis of Section 2 to estimate the GVA and jobs supported in the rest of the Welsh economy through the purchasing behaviour of NHS Wales. Just less than an estimated £2bn of GVA is supported outside of the NHS in Wales, with over £1bn of this GVA, and almost 33,000 jobs in sectors outside of health. It should be noted that the analysis in this report excludes the impacts arising through the capital expenditure programme. This spending will vary from year to year, but will add to the already significant impacts estimated as part of this research.

## 4 Conclusions and reflections

The report has focused on quantifying economic significance of NHS Wales' activity, and reveals, as expected, how central NHS activity is to the contemporary regional economy, supporting a wide range of activity in every corner of Wales. It is important to understand this contribution, not least as a benchmark. Changes in the level of support for NHS Wales, or indeed subtle changes in the direction of spending within the organisation could have marked local effects. The relatively stable employment offered in parts of the sector is in marked contrast to that in some parts of the private sector. There are few manufacturing or services sectors in Wales that are able to support employment so widely, and with the NHS arguably a cornerstone of the foundation economy in the region.

This is the first attempt to quantify the wider economic impacts of all of NHS Wales on the regional economy. Whilst this research has involved considerable levels of detailed data analysis, the results should be considered as estimates. Follow up and extended research over time and with other parts of the public sector would be needed to improve upon and compare the estimates made in this report with other sectors of the economy. The recently published report (June 2018) on the *Economic Value of the Adult Social Care Sector - Wales*<sup>7</sup> does however provide some useful comparisons and context. The report did not include an examination of sector spending data, but used UK-level estimates of the scale of indirect and induced-income effects. This analysis concluded that the adult social care sector in Wales supported a total of 93,600 FTE jobs and £2.2bn - £2.4bn of GVA. The GVA supported by the adult social care sector is lower than that supported by NHS, due to lower employment effects combined with the relatively lower wages and salaries in the social care sector. However with a growing emphasis in the UK and in Wales on integrating health and social care services (see later) it is likely to be increasingly difficult to separate out the impacts of each of these sectors in the future. The research on these two sectors does however indicate the significant scale of the combined health and social care sector to the Welsh economy.

The findings and analysis in this report need to be considered in the context of future NHS changes. The publication of *A Healthier Wales* in 2018 laid down ambitious challenges and actions for the NHS in Wales and other stakeholders in the social care sector. *A Healthier Wales* speaks visions a changed model of seamless healthcare in Wales with an emphasis on prevention, people having greater involvement in the

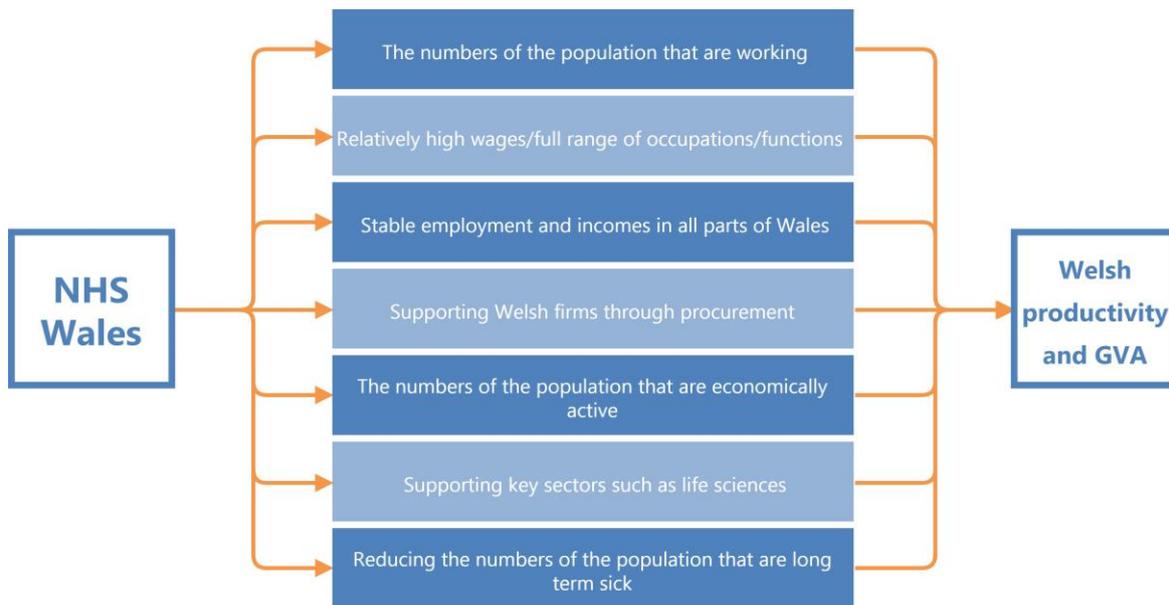
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<sup>7</sup> See [https://socialcare.wales/cms\\_assets/file-uploads/The-Economic-Value-of-the-Adult-Social-Care-Sector\\_Wales.pdf](https://socialcare.wales/cms_assets/file-uploads/The-Economic-Value-of-the-Adult-Social-Care-Sector_Wales.pdf)

management of their health, and a stronger emphasis on local care and with central hospital based care and treatment less central to the system. Fundamentally *Healthier Wales* accepts that a service founded on a medical model of health, and then a differentiated system of social care is no longer relevant given the demographic problems facing the Welsh economy.

The analysis in this report then reflects a spending pattern in NHS Wales which is expected to evolve quickly in line with the transformative model espoused in *A Healthier Wales*. The transformations in health and social care are expected to lead to changes in the direction and location of NHS spend in Wales. This leads to important future questions. For example, how will the evolution of provision and the focus on better quality local care and provision affect the indirect economic impacts that result from NHS spending? Will new patterns of spending result in a changed distribution of economic effects in Wales? Finally will the transformation in services lead to different industries in the Welsh economy benefiting from NHS spending? These are questions for future research but highlight that the analysis in this report is a snapshot of the economic impact situation in the 2016/17 financial year – the factors that contribute to economic impact are expected to change.

This report has provided some consideration to the wider set of economic and social relationships which works to support Welsh productivity and GVA (summarised in Figure 7 below), and a focus on the hard economic numbers should not take away from these more complex contributions.

**Figure 7: NHS Wales and regional economic relationships**

Finally, at the time of completing this report there is still much uncertainty around the nature of the EU transition process. While there has been a focus in Wales on Brexit risks in terms of the export industries, there are still expected to be impacts on those parts of the economy that do not ‘explicitly’ trade. One key issue in this respect relates to labour markets, with a proportion of NHS staff in Wales being from the European Union. An estimated 2.5% of NHS Hospital staffs in Wales (in 2016) were from either EU or European Economic Association (EEA) area.<sup>8</sup> It is unclear at present how in-migration rules will change post Brexit, but a more difficult recruitment climate could affect the provision of NHS services in Wales. Of particular concern here is whether labour supply shortages in England and the South east will lead to skills leaking out of Wales. In addition to this there are some supply chain threats to the NHS for selected goods and services following from EU transition, but with some future potential in selected cases for domestic suppliers to bridge gaps.

At another level while NHS activity in Wales might arguably be less impacted by Brexit in comparison to selected of Wales’ large exporting industries, the employment and incomes supported by NHS activity provide something of a shield to the regional economy through this time of economic uncertainty.

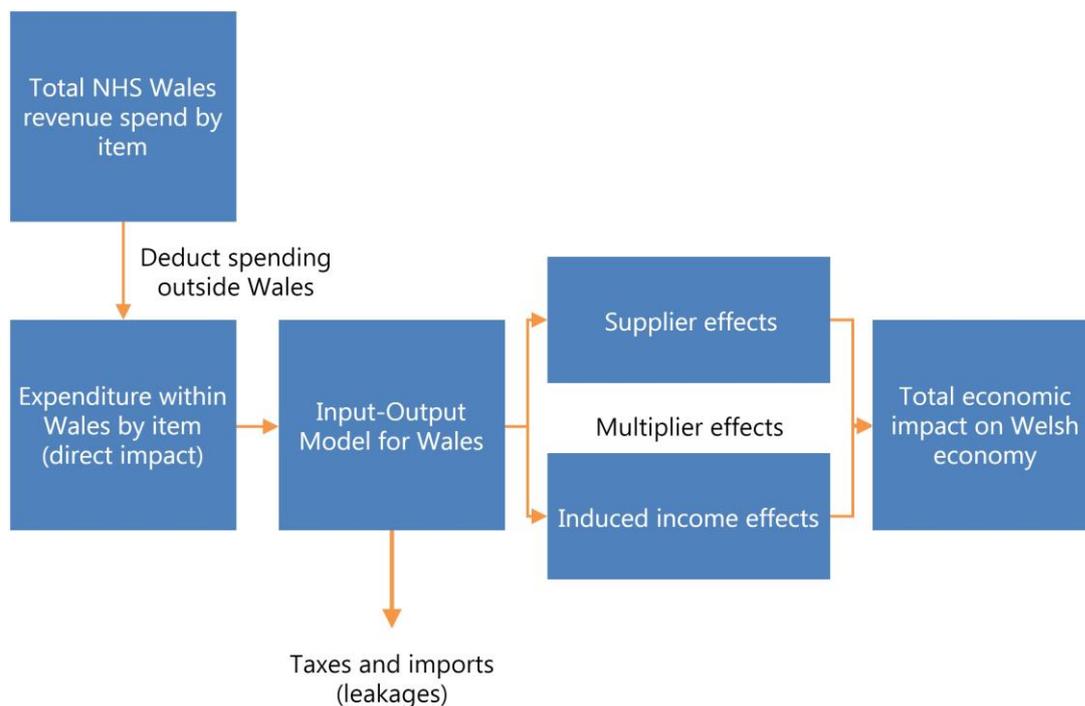
<sup>8</sup> See <https://gov.wales/docs/statistics/adhocrequests/2018/180319-nhs-hospital-staff-nationality-30-september-2015-2016-en.ods> but see also <http://researchbriefings.files.parliament.uk/documents/CBP-7783/CBP-7783.pdf> for England figures.

## 5 Appendix 1: Using Input-Output tables

To estimate the indirect (or multiplier) consequences of NHS Wales' activity it is necessary to have a picture of the local economy that specifies how regional industry sectors 'fit together' in terms of their trading relationships. This then allows the effects of activity in one sector to be traced through the entire local economy. The most comprehensive financial picture available of the Welsh economy is an Input-Output table.

The Input-Output table presents a detailed financial map of the economy for a particular time period, typically one-year, and shows the flow of goods and services between industries, consumers and government. As well as being an important descriptive tool, the Input-Output tables can be used as a basis for economic modelling and for impact assessment. Input-Output Tables for Wales are the product of a continuing research project at the Welsh Economy Research Unit, Cardiff Business School, to develop a comprehensive picture of the Welsh economy and the way it is changing over time. Further description of the Welsh Input-Output project, its strengths and limitations, can be found in Jones et al., (2010)<sup>9</sup>.

**Figure A.1 Method in Outline**



<sup>9</sup> Jones, C., Bryan, J., Munday, M. and Roberts, A. (2010). *The Input-Output Tables for Wales 2007*. Cardiff: Cardiff Business School. [http://www.cardiff.ac.uk/data/assets/pdf\\_file/0010/698869/input-output-tables-2007-final-30-6.pdf](http://www.cardiff.ac.uk/data/assets/pdf_file/0010/698869/input-output-tables-2007-final-30-6.pdf)

Figure A.1 outlines the approach. The method adopted involved estimating the indirect (and induced) effects of NHS Wales. This required detailed financial information on the way in which NHS Wales spends money within and outside the regional economy. NHS Wales provided information on employment, wages and salary costs, and supplier spending for the financial year 2016-17. The indirect and induced effects connected with this spending are estimated by placing the direct purchases and wages within the Welsh Input-Output framework.